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THE
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☞See advertisement on last page.

Poetry.

TO SPRING.

The Boston Post says that "the following lines were written by a little girl (Miss Abby Waters, 47 Missouri Street, Boston) only ten years of age.

Now the winter signs are going
Fast from stream and sod and tree,
Warmer airs are milder blowing,
Spring is here with face of glee.
Snows are low and suns are high,
Where her rosy footsteps fly:
Wide abroad her mantle flinging,
As the angel-maid advances.
Flowers are blooming, birds are singing,
In the sunshine of her glances.
Soul of verdure, youth and beauty,
Genius of the road of roses,
Who delays to pay thee duty,
Who, but in thy lap reposes?
Earliest born! thy blush supernal
Gave their tints to Eden's flowers,
Clad the globe with glories vernal,
Fitted scenes for heavenly hours
Changeless, though the globe is changing,
Youthful, though our forms grow old.
As of yore, your feet come ranging,
Bringing beauty to thy mold,
Balm to breezes, light to skies,
Life and freedom to the fountains,
To the woodlands emerald dyes,
Moss and garlands to the mountains,
Order to uncultured lands,
Music to returning birds,
Labor to the farmers hands,
Hope to hearts, and cheer to words;
Glorious, gentle, genial Spring,
Could we ever to thee cling,
Never more a sigh for summer
Should a human bosom heave;
He should be a noteless comer,
Nor a look of love receive,
For thy ways are ways of grace,
Freshness, peace and purity,
Paradise adorns thy face
With its sweet simplicity,
And though summer's robes imposing
Ampler seem and bolder dyed,
Thine are evermore disclosing
More of peace, and less of pride,
Only in thy walks I'd wander,
Other seasons sacrifice,
And when dust and spirit sunder,
Leave thee only for the skies.

SPRING.

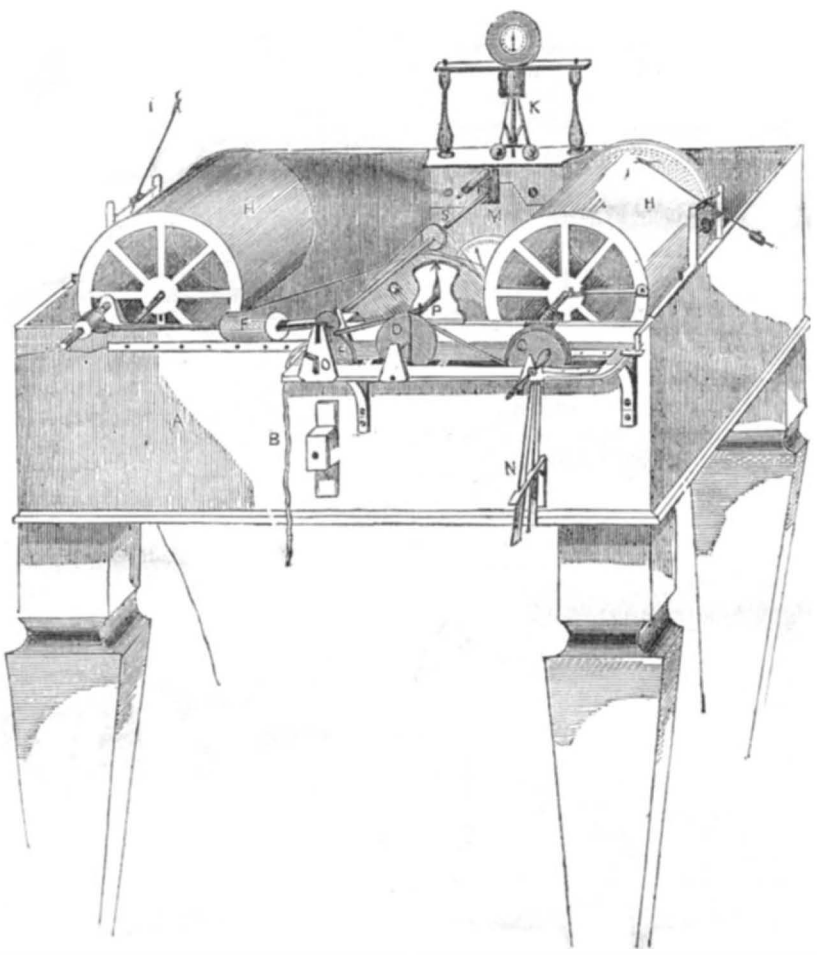
In the forest—by the fountain,
Voices glad are carolling;
Flowers gem the dark brow'd mountain,
In the rosy hues of Spring.

Clouds of amber sun-light stealing
'Mid the branches overhead,
On the velvet turf are kneeling—
By the hand of Nature spread.

Buds and blossoms bright are springing
Round our footsteps, all the way?
Birds in leafy groves are singing—
Listen to their merry lay.

Voices in that fresh green wildwood,
Tell a tale of joy to me;
And the sunny tones of childhood,
Speak in bud, and flower and tree.

BAIN'S ELECTRO CHEMICAL TELEGRAPH.---Figure 1.



This invention of a Telegraph is altogether different from that of the Electro Magnetic. The Magnetic Telegraph, which is the invention of Prof. Morse, transmits communications through electric currents by means of magnets operating a marker to produce certain signs mechanically, either by indents, signs, or marks with pencil or ink upon paper, the paper to be moved by hand or clock work and each act of marking requiring the force of the electric magnet to put the marking instrument into motion, and the magnetic force to be broken in order to remove the marker from the paper.

Bain's invention is altogether different from the foregoing. No magnet is used. The marker neither makes indents nor marks with ink or pencil, and it is not moved by a magnet.—His marker which leaves the impress of the communication on paper is always in communication with the paper that receives the sign, but the electric current is broken by the interposition of a non-conducting substance, so as to let the marker bring out certain signs on the receiving paper according as the non-conducting substance breaks the electric current. It is, therefore, not magnetic. It is chemical, because the principle of it is founded upon the agency of electricity bringing out certain colors that are latent in certain substances, upon the principle of steam colors in calico printing; in other words, the electric current from the battery operates upon certain yellow salts in the receiving paper and changes the color, wherever the current touches, from a yellow to a prismatic blue, consequently Mr. Bain's receiving paper is like a beautiful dotted piece of calico. We have touched upon a question here which confirms a theory we have already laid down, that electricity is the agent of the Dyer and Calico printer in the deposition of their colors. We have not room here to discuss this question, but we shall do so at some other period, and a theory it is which will yet change the whole of the practical chemical arts as relating to those braches of manufacture.

We have said before that the principle of this invention lies in the interposition or breaking of the electric current by a non conducting substance. This substance is paper, which must be perfectly dry. This paper is perforated with holes of certain lengths and the paper passing over a current roller on which rests a point, according as this point touches the roller by the opening in the paper, or as the paper is interposed between the roller and the point, so is the current transmitted to the receiver.

DESCRIPTION.—A, is the frame of the apparatus, portable and neat, the interior like a box. B, is the paper on which the perforated communication is written. It is rolled upon C, and held firm or free by two clamp arms N. It passes over D, the current roller, and between two rollers, a small upper one and E, a lower larger one. These two roll out the communication by pressure, like Blotching rollers, the two being held down by F, an arm which is made to be easily raised to put in the communication. H, is the receiving cylinder, on which is the moist prepared paper to receive the communication. P, is a small point which rests on D. This point communicates the current from the battery (the wire from which is seen coming to a brass rod on the side of the apparatus and communicates with D.) From P, the current is continued by a wire inside to the pen I, which is seen resting on H. It will therefore be observed, that when the strip of paper B, is rolled off C, according as the steel points of P touch D, the current is communicated to the paper on H, and a mark is made, and, if the current is broken between the two, no mark is made. The prepared strip of paper B, then does this as it is rolled off C, and thus the communication is sent and received. The apparatus is moved by clock work and a wheel, not seen, on the other side, where the operator stands. S, is the shaft which moves the whole, by the operator's wheel. On this shaft is a small pulley, and G, a larger one below, which guides a round cord on which the cylinder rests, so that when the shaft S, moves

☞*Concluded on page* 276.

RAIL ROAD NEWS.

Day Line to Boston.

The travel on the New Haven route has increased so much that an Express is hereafter to run between this city and Boston, arriving in each place at 6 o'clock P. M. The Springfield Republican speaks of the arrangement as follows: "After next Monday, the New York or steamboat train for Boston, will leave here at a quarter past 2, and, without stopping at the way stations, make the trip to Boston in three hours and a half. It will consequently arrive there before 6, thus making the time from New York to Boston, including all stoppages, less than 11 hours. Going the other way, passengers dine on board the boat, and consequently the trip is made from a half to three quarters of an hour sooner."

New York and Boston Railroad.

The Middletown, Conn. Constitution, states that a meeting of the Commissioners of the New York and Boston Railroad, or Air Line, was held in that city on the 28th ult., to approve of the location previously made of the portion of the line of said proposed railroad lying east of the Connecticut river. The company have adopted the route in the direction of the city of Providence, in consequence of the refusal of the Rhode Island Legislature to grant a charter on the direct route in that State. The *Air* Line is therefore abandoned. The location of the portion of the road between Middletown and New Haven, is to be made as soon as the surveys now in progress on that portion are completed.

Great Western Railroad.

The Western Canadian says Sir Allen McNabhas written to the engineer of the Great Western Railroad, assuring him that the government will guarantee £600,000 for the construction of the road.

By annual return of the Railroad Corporations in Massachusetts, it appears that the amount of capital invested in Railroads there is about $40,000,000; the total cost and equipments exceeds $35,000,000; and their united length exceeds 900 miles. The total income last year was upwards of $5,200,000.

It is stated that the contracts for grading the route for the Hudson River Railroad between Fishkill and Poughkeepsie, have been taken for $31,000 less than the estimate of Mr. Jervis, the Engineer.

A sufficient amount of stock, $100,000, has been subscribed to the Cincinnati and Hilsborough Railroad, to authorise the organization of the company incorporate to construct the work.

A great mine of soap stone has been brought to light by the railroad through Canterbury, N. H. Enoch Gibson is the name of the fortunate owner. It sells now readily for $20 a ton, and the Portsmouth Gazette computes the whole quarry to be worth near $3,500,000. A rather high estimate we guess.

The Cheshire Railroad is now opened to Keene, N. H.

A new plank road is about to be constructed from Chicago, Ill. to the Des Plaines, and thus open a highway through the marshy district around Chicago.

The fare from Rome to Oswego, N. Y. on the new plank road is $2. Cheap enough.—A fine line of stages is now upon that route.

A large bed of metallic ore, said to contain a rich per centage of tin, has been discovered on the lot of Mr. William Merryman, in Baltimore county, Md.

Much concern prevails among the Turpentine producers of North Carolina, on account of the immense number of pine trees that are dying without any perceptible cause.

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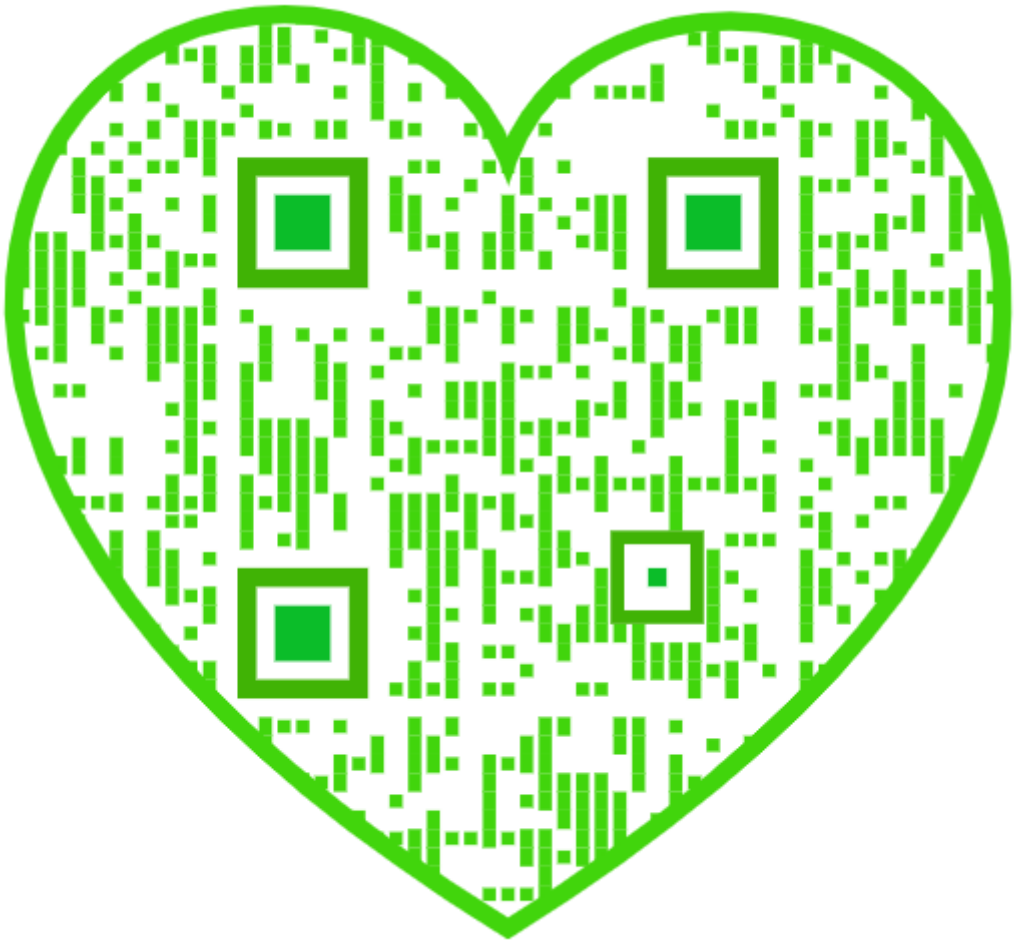

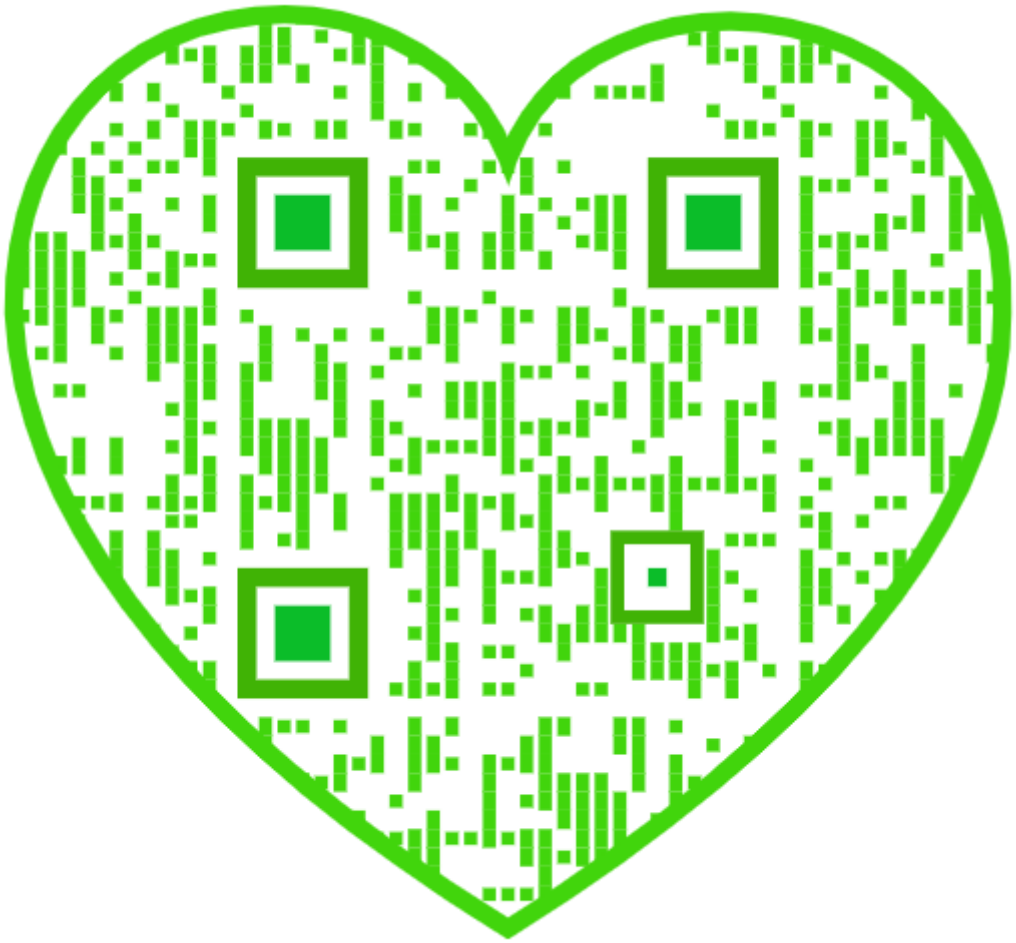

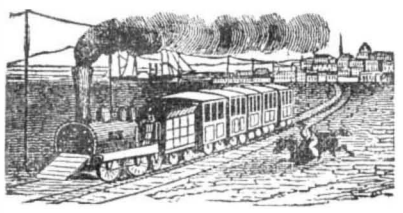

Self-Discharging Flour Chest and Flour Packer Combined.

This is the name given to a new invention for packing flour, recently introduced into some of the Oswego mills. Col. W. J. Pardee has just put it in successful operation in his mills, and it is believed that the invention will very generally take the place of the old system of packing. In construction it is simple and packs a barrel in about a minute.—The garner into which the flour is received from the bolts is capable of holding four hundred barrels The empty barrel is placed under the garner, which tapers in size to be received by the barrel. A shaft, to which are attached blades so constructed and set as to form something like a screw, is let down into the barrel. The machinery sets it in motion, it lifting itself as the flour is let in and packed by the blades. But two men are required to do the packing for three run of stones, a great saving on the old plan.

Important Invention.

Mr. David Isham, a machinist of Hartford Conn., has recently invented a process by which cast iron can be converted, almost instantly, and with but slight expense and labor, into steel. Twenty minutes only are necessary to convert a ton of iron into steel of the best quality, a process ordinarily requiring from six to ten days. The inventor has been offered $12,000 for the patent right of the State of Pennsylvania alone. Articles manufactured from steel thus prepared, have been proved and found equal to those manufactured from the best English steel. If this invention is really what it purports to be, it will destroy one great branch of English labor and add much to the wealth of this country, but we have doubts.

New Card Press.

Mr. Wm. H. Foster, printer, of Portsmouth N. H., has invented a card press, which the Rockingham Messenger pronounces superior to any with which it is acquainted, for "compact form, the extreme simplicity of its mechanism, the evenness of its impression, and the perfect ease with which it is worked"—besides which, costing about half as much as the other presses now in use for card printing. The Messenger says, from actual test, that a pack of cards may be printed in *two minutes*, and that a child can perform the work as well as a man.

Old Independence Bell.

The design for this sacred relic is that it is to be placed upon an octagon base having at the corner eight "fasces," surmounted by the liberty cap and usual emblems; upon the fillets which bind the reeds of the "fasces" to be placed the names of the illustrious signers of the declaration of independence. Upon the four faces of the octagon are to be placed shields, one containing the inscription and history of the bell, one the arms of the United States, one the arms of Pennsylvania, and the fourth the declaration of independence; the American flag to be festooned between the fasces, and the bell itself to be surmounted by the American eagle.

A Rhyming Youth.

The New Orleans Commercial Times says that Dr. Dickey of that city has an only child of three years old, whose constant habit is to make rhymes. The little fellow rattles them off so rapidly at times as to prevent their being taken down. His ear for music is in keeping with his wonderful powers of rhyme.

How to grow Rich.

Nothing is more easy, says Mr. Spaulding, than to grow rich. It is only to trust nobody befriend none; to heap interest upon interest, cent upon cent: to destroy all the finer feelings of nature, to be rendered mean, miserable, and despised, for some twenty or thirty years and riches will come as sure as disease, disappointment, and a miserable death.

Bargains.

An American in Paris writes:—"I was at a jeweller's this afternoon with a gentleman, and saw the counter covered with silver dishes, complete dinner services, knives, forks, spoons, all of which he told me he had just bought for old silver at its value in weight in bullion, and he offered to sell me any of it at the same rate. Many of the things, he said, he had sold new within the last six months. The most magnificent horses you ever saw, can be had for a hundred dollars the pair.

New York Hermit in Mexico.

At the head of Brazos Island we found an old hut, inhabited by an old man singular in appearance as the manner in which he lives, almost entirely secluded from the world. Inquiring into his history we found that he belonged to Utica, and that his name was Parker. He had also resided in Rochester about 20 years ago, but could remember no one except Joseph Medbury, whom he seemed to know quite well.—*Corres. Rochester Dem.*

Steamboat Fare on the Lakes.

The Assocation of Steamboat and Propeller owners on the Western Lakes have adopted a tariff of prices to continue through the season. The price for passage from Buffalo to Cleveland is $4,50; to Black River, Huron and Sandusky, $5, to Maumee River Monroe and Detroit, $6,00. From Buffalo to Mackinaw, $10; to Milwaukie, Racine, Southport and Chicago $12. The price of freight from Buffalo to Chicago, and intermediate posts on the Upper Lakes, is 20 cents for heavy and 35 cents for light freight.

A Hint to American Shippers.

It may not be generally known in America that serious damage often arises from cotton being shipped on board vessels partly laden with Indian corn. The steam arising from the latter not only damages the bagging but penetrates the cotton itself, and, by its great heat destroys the staple. The greener the corn is at the time of shipment, the greater, of course, the injury.

Death of a Chief.

The Osage Chief, Black Dog, is dead. He died, says the Cherokee *Advocate*, about the 24th ult., at his village. He had been lingering for two or three years under a tormenting disease. During his sickness he made two trips upon the prairies by the assistance of his band. He was literally a self-made hero. As a warrior, he had no equal among his people. In time of danger, he was emphatically his nation's hope. He was courteous in his Indian ways—warm-hearted, and generally beloved. In stature, the Black Dog was about seven feet, weighing some two hundred and seventy-five pounds.

Extraordinary Remains.

While some persons in the employ of Major Bates, of Guernsey, Ohio, were engaged in quarrying stone for the repair of the national road on the hill west of Cambridge, they found in a petrified state, what was supposed to have been the body of an Indian child, which, perhaps was deposited there centuries ago. This extraordinary specimen of ancient remains was found imbedded in a mass of solid rock, and has the appearance of a strange image somewhat imperfect in form, yet having the appearance of the human shape. The material of which it is composed appears to be a species of limestone. In the same cavity was also found a small row of what appeared to have been Indian beads.

Telegraph Wires.

India Rubber is now proposed to insulate Telegraph wires. Gutta Percha has been tried in the Passaic river with so much success, that the company propose to make an effort to cross from Jersey City to New York by laying insulated wires under water. Mr. Wilson, of the Trenton Telegraph office, has suggested to the company, according to the Gazette, the experiment of insulating their whole line with gutta percha, and burying it some six inches in the ground, instead of supporting it on poles. At present, the great exposure of the wires subject them to innumerable and constant interruptions.

The Propeller Albany.

This fine boat, says the Philadelphia Ledger built in Kensington during the past winter by T. Birely and Son, under the superintendance of Capt. R. F. Loper, to run between Albany and Hartford, has created quite a sensation in these cities, being universally pronounced to be the swiftest and handsomest craft of the propeller kind ever seen there. The Albany Evening Journal, in speaking of the arrival of this vessel at that City says:—"She made the trip from Philadelphia to Albany in thirty-four hours, and during the greater part of the way, she had a strong head wind to contend against, and used her sails about one hour during the trip, and even then to little advantage. The external appearance, and internal arrangements of the Albany are alike neat and beautiful. Her commander, Capt. E. White, informs us that she more than meets the expectations of her owners. She is not only a swift sailer, but one that travels well in a rough sea, and that the working of her engine is scarcely heard in the cabin, although making sixty revolutions a minute.

American Journal of Agriculture and Science.

This valuable Agricultural periodical for May, which we should have noticed last week, contains some of the most useful and interesting articles that we have ever read. Scientific and Practical Agriculture, by S. Durand, is an excellent article. It is published in Albany, by C. N. Bement, and would be a better periodical for a farmer's family than the light literature that we too often find there.

Ewbank's Hydraulics.

The 7th part of this valuable work is just issued from the press of those enterprising publishers of useful works, Messrs. Greely & McElrath. The next number will be the last issued and will complete the book. Those mechanics who have not yet taken it, should delay no longer. It is the best and cheapest work on Hydraulics ever published. For sale at this office, price 25 cents per number.

Latest Improvement.

Public Breakfasts are now substituted in this city for Public Dinners Two grand festivals have already been celebrated here and public breakfasts given at 7 o'clock in the morning.

Large Sale.

The pews in the Plymouth Congregational Church in Brooklyn, (Rev. Mr. Beecher's) were rented last week, for one year, and will produce enough to raise the whole rent to $8-500. One gentleman took the whole gallery on one side, for the purpose of filling it with families who do not feel able to hire seats or only at a very low price. He has 25 pews for $100 and intends to have a family for each of them. It is an excellent plan for doing good.

Composition Building.

In Wisconsin, houses are built in some districts with a composition of sixteen parts gravel, and one part lime—the latter being slacked upon the gravel and mixed directly with it. Two planks are placed edgewise eight or twelve inches apart, and the space between filled to the depth of eight inches. This is suffered to stand till the next day, when it is sufficiently hardened to raise the planks and repeat the process.

Important, if True.

M. Verspuy of Riom, France, states that he has succeeded in discovering the means of avoiding most of the dangerous consequences resulting from the present mode of making white lead. By his process the manufacture is carried on in a closed apartment, and none of the dust can enter the lungs of the workmen.

Mr. James Crane, of Shalersville, Ohio, while engaged a short time since in splitting barrel staves from a white oak tree, which was perfectly sound, and after he had worked up twenty or twenty-five feet from the butt end, discovered what he supposed to be a knot, but on opening it found it to contain a middling sized toad, which remained in this space until there had grown eight inches of timber over him.

Sheet Tin.

A company it is said have it in contemplation to establish a sheet tin manufactory in Pittsburgh. Block tin is principally imported from Peru, and forms only about one tenth of the composition of which sheet tin is composed. The other ingredient is iron. We are not aware that there is at the present time, a sheet tin manufactory in the United States.

Improved Wrench.

By reference to our advertising columns our readers will notice a description of an improved Wrench. It is a very great improvement on the common wrench, and only needs to be seen and used to be well appreciated.

Pacific Railroad.

The bill making a grant of land in aid of Whitney's Pacific Railroad, passed the U. S. Senate on Wednesday, by a very decisive vote, and a favorable report has been made in the House. We presume the bill will also pass the latter body.

A great number of birds have fallen victims to the light of the dome of the Capitol at Washington On one morning fifty beautiful birds of different sorts, and of various plumage, were found dead. Started up in the night from their resting places in the square, they are probably drawn to the light, and dash themselves to death against the lantern or the wires.

A shanty containing about 265 kegs of powder, on the Hudson River Railroad, about one mile below West Point, was fired, it is supposed by an incendiary, and the whole building and several others near it were blown to atoms, on Saturday night last. One man was killed and a number of others injured, some of them mortally.

An iron bridge is about being constructed for the Philadelphia, Wilmington and Baltimore Railroad, and placed over Naaman's Creek. It is about 120 feet in length, and to have two spans of about 60 feet each. It is said that several other similar bridges will be erected on the same route.

One hundred and seventy-five coal miners lately arrived in this City. They represent the condition of laboring colliers in Scotland as most distressing. Beggars infest every door, and when the usual gift of oatmeal is bestowed, it is eaten raw on the spot, to stop the cravings of hunger.

Every man certainly has a right to live, and the duty of every just man is to let him live, Blessed be the day, if come it ever should, when man shall learn that his own true prosperity is essentially involved in the prosperity of his neighbor.

The building of canal boats is one of the most extensive branches of business in the City of Rochester.

Last year there were 233 boats built, 445 men employed, and the value of the work set down at $310,760.

Pottsville Emporium, be pleased to notice the decision in regard to the *Patent Coal Breakers*. We shall be obliged for the information relative to the suit of *Batten*. Also that of Jenkins's for Wire Weaving.

The lungs of a common sized man, when inflated, contain 300 cubic inches of air; 16 cubic inches of air are thrown from the lungs at each expiration.

An honest Hibernian recently invented a teapot with two spouts, the one exactly opposite to the other, for the convenience of pouring out two cups of tea at the same time.

Spirits of ammonia is said to be a cure for bloating or hoven in cattle. A tablespoonful is a dose for a cow.

The Rev. Mr. Pepper's invention of Albany Argillo is about to be applied to flooring some of the public buildings at Washington.

Wm. Polk Esq., of Arkansas brother of the President, is the largest corn grower in America. His crop last year was 100,000 bushels.

The Senate of Connecticut has appropriated $10,000 for the establishment of two agricultural schools.

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For the Scientific American.

Steamboat Speed.

Baron Leguier, a French gentleman states that he saw two English Steam Packets, the Success and Express, that made the trip from Havre to Bologne in five hours. The distance between these two places is 240 killometres and allowing 8 killometres to be 5 English miles, these boats run at the rate of thirty miles per hour,—a speed never yet attained by any boat in this country. On the Hudson river, smooth water, no steamboat has ever made the trip to Albany in less than seven hours, and the distance from Havre to Bologne is just about the same as from here to Albany. Uncle John appears to be steering through the world much quicker now than Jonathan. We would not be doing our duty to our country, were we not to tell our mechanics that they must lay out a new track. There is not a boat on the Cunard line, even the old Britannia, that has steamed it from Liverpool to Boston for 7 years, but has beat our crack new ships. What is the reason of this? The answer is a plain one. Our steamships have rather been built for gasconading than for real sea service. When the United States went out on her trial trip and was coming back all in fine sailing trim, she met the old Hibernia going out fully loaded for her voyage. Nothing would do then, but for the United States to act like the foolish English Captain of the Guirriere, to sail round in bravado, the other vessels. This was very foolish, and we have paid the penalty of the theatrical exhibition. We look upon everything connected with our Republic, as if it should be solid, strong, and the very reverse of vanity. Now, if we wish to hold even our credit for go-a-headitiveness we must turn over a new leaf in steamboat navigation. Undoubtedly all the blame lies in ourselves, the people. We have made the government, and they are men who have no taste for mechanics, neither in the abstract nor practical. Hence they are destroying the spirit of American invention, as if our mechanics were so many Mexicans. We do not speak as a partizan, all the cabinets have been tarred with the same stick. Congress has so neglected the protecting and encouraging of inventors and real useful inventions, that it has now almost become a proverb, "oh what use is a patent?" The fact is, that owing to the present state of the Patent Office, it takes about ten months before an application is examined, after it is applied for, and there is such a stealing of inventions that it is enough to dishearten every inventor. The success of the swift steamers we have mentioned above is owing to new Patent Engines invented by Maudesly and Field, of London, and it is quite common for their Boats—all iron, to run 22 miles an hour at sea, and the London Mechanics Magazine, records an instance of the Scotia, a new vessel of the same class, doing this against wind and tide. We can do the same thing on this side of the water too, and must do it. We could not be true to our country were we to disparage and hold back what other nations have done, and boast only of ourselves. We tell the truth about what others have done in order that we may go and do so likewise—there is nothing to hinder. What other nations have done in mechanics, we can do also and perhaps a little more. Shall it be done, is the question? G. R.

Indian Superstition.

During the late great hailstorm in Arkansas wild geese and brants, a species of the wild goose, appeared to be on the wing that day, migrating in great numbers from south to north, and were killed by hundreds with the hail, while flying. Thirty were counted in one place, lying dead, by some persons who passed the spot shortly after the storm. Micanopy, a Seminole Chief, told the agent afterwards he thought the Great Spirit had sent them to the Indians, knowing they were scarce of provisions. Some of the Indians were afraid to eat them, supposing the destruction of so great a quantity of these birds portended some evil to their country. Others carried them home by horseloads.

A company of Fourierites, from France, have bought four millions of acres in Texas. They are called the Icarian Colony.

Neutral Salts.

Most of the acids readily combine with the metals, earths and alkalies, forming substances widely different both in appearance and properties, from either of their constituents; and these are termed Neutral Salts. These salts are generally soluble in water; but some of them are not only insoluble, but are so hard. permanent and durable, as to be used in building, and in the construction of vessels and instruments peculiarly adapted to withstand fire, water or acids. The ordinary methods of procuring the neutral salts artificially, is to dissolve the metals or alkalies in an acid, and evaporate the solution till it is reduced to a dry crystalline substance, usually transparent, but some kinds are densely opaque. They are named according to the ingredients of which they are composed; as for instance, the combination of sulphuric acid with iron is denominated the "sulphate of iron," and that of muriatic acid with soda, is called "muriate of soda," &c. The insoluble substance known as gypsum, or plaster of Paris, is a combination of sulphuric acid with lime The hard and shining black stone which is much used for building in Virginia, is a combination of lime with carbonic acid.

Metallic Salts.

It should be generally known that the combination of sulphuric acids with metals form salts, which receive the name of sulplates The combination of sulphur gas again gives the name of sulphurets to other compositions.

To a small quantity of sulphuric acid (in a tumbler or porcelain cup) add an equal quantity of water, and as much iron (iron filings are best) as the acid will dissolve Place the cup over some coals, or on a hot stove where it will boil gently, and in a few minutes crystals of a green color will be formed, which is the substance usually known as copperas.

Dissolve some filings of copperas in sulphuric acid, by applying a moderate heat. When this solution is all evaporated very beautiful crystals of blue vitriol will be produced

Dissolve pure white soda in muriatic acid and evaporate the solution, and white semi-transparent crystals will be readily formed, which will prove by the taste to be common table salt.

Dissolve a piece of pure silver in nitric acid, and the solution will be transparent and colorless. Add a little muriatic acid to the solution, and the muriatic will instantly combine with the silver, rendering it opaque and insoluble.

Mix together the saturated sulphate solutions of iron, copper and soda: evaporate the compound, and three distinct classes of crystals blue, green and white, will be produced without any mixture or combinations with each other.

A Beautiful Thought.

Life is beautifully compared to a fountain fed by a thousand streams, that perish if one be dried. It is a silver cord twisted with a thousand strings, that part asunder if one be broken. Frail and thoughtless mortals are surrounded by innumerable dangers, which make it much more strange they escape so long, than that they all perish suddenly at last. We are surrounded by accidents every day, to crush the mouldering tenements that we inhabit. The seeds of disease are planted in our constitution by nature. The earth and the atmosphere, whence we draw the breath of life, is pregnant with death—health is made to operate its own destruction? The food that nourishes contains the elements of decay; the soul that animates it by vivyfying fire, tends to wear it out by its own action; death lurks in ambush along our paths. Notwithstanding this is the truth, so palpably confirmed by the daily examples before our eyes, how little do we lay it to heart! We see our friends and neighbors perishing among us, but how seldom does it occur to our thoughts that our knell shall, perhaps, give the next fruitless warning to the world!

In a great number of animals, life may be suspended for a long time with impunity, by drying, but on contact with water, which they have the power of imbibing, they return to life, and recommence their movements.

Vegetable and Animal Carbon.

Many suppose that a flesh diet is indispensable, at least in winter, to supply this increased demand for carbon. As we need more carbon, in winter than in summer. Yet their argument is completely overthrown by the fact that vegetable food contains, in the aggregate, as much carbon as animal Thus, roasted flesh, contains only 42 per cent of carbon, while eggs contain 53, and bees-wax 81. The albumen of wheat contains 55 per cent, and of almonds 57 of carbon. Starch contains 44 per cent, and the amount of carbon contained in four pounds of starch equals that contained in thirteen pounds of meat. Indian corn contains a great amount of carbon, so does molasses. In fact, abstract the water from molasses, and the remainder is carbon; so that molasses and Indian meal furnish an excellent winter diet. So does bread and molasses. All vegetable oils are composed of about four fifths of carbon, and as drop after drop of this oil can be pressed out of a walnut, or butternut, of course these nuts furnish a far greater amount of carbon than lean meat. Why not, then, seek in nuts and vegetable oils the carbon, to obtain which, you say we must eat meat? That is, why not eat nuts in place of meat? Chesnuts and other nuts should be well cured, yet they were undoubtedly created to subserve the purpose of food, and should form a part of our regular winter meals. Sugar and sweets generally contain from 40 to 45 per cent of carbon, according to how dry or wet they are, the balance being water. Hence, also, as their water is easily taken up by the stomach, they may be justly considered as nearly all carbon. Hence as fat is nearly all carbon, all the slaves, animals, and even dogs on the sugar plantations, become fat while making sugar. That is, almost the entire solid matter of sweets, when their water is dried out, is carbon. Nearly the whole of honey, after its water has been abstracted, is carbon. Olives, and olive-oil, also contain it, especially the latter in far greater abundance than meat. We do not, therefore, need to go to the animal kingdom for carbon, when we can obtain it in forms much more concentrated, from the vegetable. True, we can obtain it from meat, especially fat meat, yet this very fat is a state of disease, caused by a superabundance of carbon; whereas, health requires fixed proportions of oxygen to burn it up.

The sufficiency of vegetables, for winter food is still further established by the fact that horses, cattle, and even reindeer,—all graminivora—are kept abundantly warm by their natural diet, though they inhabit regions quite as cold as any of the carnivora. Indeed the latter are more abundant, relatively in the torrid zone—a fact which tears this winter meat eating in tatters. If meat is so conductive to animal heat and life, why are lions, tigers, &c, confined to warm climates? As oats keep the horse abundantly warm, why not oatmeal keep man sufficiently warm through winter.

Sam Patch Outdone.

A most extraordinary leap was performed lately by a tabby-cat at the West end of the good city of Boston. Having taken advantage of the absence of the family during the time of public worship, pussy made her way into a gentleman's room, attracted thither by the music of a favorite bird. As she was meditating upon a more intimate acquaintance with the feathered songster, the occupant suddenly made his appearance. Conscious that she was guilty of malice prepense, though no avert act had been committed, puss, without attempting apology or explanation, made a bound through an open window (in the fourth story) landed safely upon the sidewalk below and ran off without either crutch or cane as nimble as ever.

A Bit of True Philosophy.

How beautiful is the saying that "we should always hope for the best and prepare for the worst!" For our own part, said a friend, I never enter a grocer's to get our weekly allowance of an ounce and a half of seven shilling mixed tea without being animated by the advice of the moralist, who tells us to "hope for the best, and be prepared for the worst!"

Queer Fancies.

There is no subject however grave, that some eccentric genius would not treat facetiously. A late writer discoursing quite fancifully upon wood for coffins, make the following queer, and comical arrangement;—

"In the exercise of a rare regard for the fitness of things, married people should be buried in pear-tree coffins, chronologists in date-tree, brick-layers and plasterers in lime-tree, pugilists in box-wood, school masters in birch, old bachelors in elder tree, cowards in trembling aspen, the honest tar in sturdy oak. The list may be extended in this country by adding: Misers in chestnut, disconsolate maidens in pine, democrats in hickory, whigs in ash, politicians in slippery elm, authors in poplar, missionaries in plum, old soakers in cherry, pretty women in sugar-maple, handsome folks in dog wood, clam catchers in beach, soldiers in lance-wood and hard hack, dairy maids in butternut, dandies in spruce, fisherman in bass-wood, poets in laurel, horse jockeys, in horse-chestnut, hatters in fir tree, shoemakers in their own tree, blacksmiths in iron wood, book-binders in boards, lovers in the tulip tree and sigh-press, coquetts in witch-hazel, travellers in sandal wood, gardeners in rose-wood, landscape painters in birds-eye maple, carpenters in plane-tree, misanthropes, in crab apple, odd fellows in Palm-tree.

The following may also be considered appropriate plants for decorating the graves of different craftsmen, professional men, &c. Watch-makers, the 'four o'clock' and thyme, sextons of churches, canterbury-bell, surgeons bone-sett, astronomers, night-shade, upholsterers fringe-tree, dry-goodsmen, calico plant, fortune hunters, mary-gold, spendthrifts the billberry, scribblers the jonquille, cooks the pansy or butter-cup, and traitors the snake-root."

Luxury of Ancient Rome.

The Roman knight at morning threw off his coverlet wrought with needle work of Babylon, and raised the Tapestry of Tyre, which hung before the entrance of his chamber. He entered his bath-room, the walls glistened with the marble of Alexandria, beautifully adorned with Numidian carvings. He ascended to his dining room, furnished with Grecian statuary and pictures, sank upon his Persian Couch, and instead of sitting at table like his hardy ancestors, reclined after the fashion of the conquered East. He wrote his letters upon paper from the land of the Pharaohs and Ptolomies and read from the parchment manufactured at Pergamus. He anointed himself with the perfumes of Arabia the Happy. The iron of Spain served him for weapons. His dice were from the ivory of India. He won his races with the horses of Epirus. Around the neck of his wife hung pearls from the German Ocean. His funeral litter was borne by slaves from beyond the Mediterranean, and his lifeless remains turned to dust in a tomb of porphyry quarried in the Island of the Ægean. All this display could be made at Rome, and yet no item to be borrowed from a nation which did not acknowledge the supremacy of the Roman name. Magnificence, which had so vast a treasury of supply, can hardly be estimated, and of course not justly described.

An Old Man.

The Buffalo Commercial says, we chronicle to-day the death of Ezekiel Lane, who lived to the advanced age of 103 years. In 1795 there were only four buildings on the present site of Buffalo—of these the first one was erected by Ezekiel Lane, and his father-in-law, Martin Middaugh. It was a double log house, on or near Exchange street—a little east of Washington street. It was jointly occupied by them till 1807 or 1808, when Judge Barker, father of Jacob A Barker, moved into it. Middaugh was a German who spoke Indian better than English, and lived as men in poor circumstances, often do on the frontiers, by raising some corn and potatoes, working a little for the early settlers, hunting, fishing and trapping. He also died at an extreme old age in the winter of 1822.

Since the 1st of March it is stated that silver plate to the valve of fifty millions, has been coined into five franc pieces in Paris.

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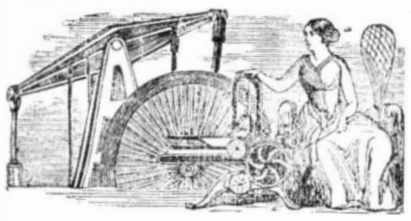


New Inventions.

New Barrel-dressing Machine.

We have seen the drawings of a new machine for the above purpose, which performs the operations of howelling, champering, cutting the crossings and trimming both ends of a barrel, all at once. The machine is driven by a crank. It is the invention of Mr. Geo. L. Crandal, of this State. We hope before long to present our readers with an engraving and full description of the invention.

Self-feeding Oil Can.

Mr. Benjamin F. Bee, of New Bedford, Mass. has made a very important improvement in Oil Cans, by regulating the supply by pneumatic pressure. A small piston on the top connected with a bellows spring inside regulates the supply by pressing on the top of said piston. The oil is forced out of the spout by pressing on the piston, and no cork or cap is needed, for when the piston is not pressed upon, the Can may be rolled about without the least fear of spilling the oil.

New Plasterer's Trowel.

Mr. E. A. Baldwin, of Shelburne Falls, Mass. has invented a Plasterer's Trowel for the correct plastering of gothic cottages and buildings. It can be regulated to plaster at any angle the plate being moved by a set of screws in a slot to allow the trowel to plaster at any angle, acute, obtuse or a right angle triangle, thus making it a most economical and valuable tool for every mason and plasterer.

Improved Horse Rake.

Mr. J. A. H. Ellis, of North Springfield, Vermont, has made a very important improvement in the Horse Rake, whereby a boy about 14 years of age is able to do more work with it than a man with any other now in use. It is superior to the revolver, or spring toothed rake. It is superior to the latter, because it does not need to be lifted over the winnow, a very severe task and requiring a man to lift it over and a boy to drive the horse. Mr. Ellis's Rake requires only a boy to drive and when it passes over a winnow all the hay is effectually delivered from the teeth. The operator stands on an elevated platform and when he wishes to unload his rake he draws back a rod in front of him and presses his foot upon a lever, and by means of weights acting upon springs, the hay is discharged in a complete and most speedy manner from the teeth of the rake. The rake is then pressed back again as soon as it has passed over the winnow, and the teeth filled and so on successively.

New Carriage.

The Worcester, Mass. Telegraph, says that Mr. Isaac Woodcock of that place, has made a most important improvement in a two wheel carriage as regards both ease in riding and beauty in appearance. The advantages which it possesses over a common built carriage, consists in the compact combination of a chaise or buggy body, with an axle, pair of shafts, and half eliptic springs, so arranged that the entire weight of the body and its load is suspended to the axle, neither resting upon or fatiguing the horse, and so also that the motion of the body of the vehicle is kept perfectly steady, and is prevented from violent jerks or vibrations, however rough or uneven the road may be. It is also constructed so as to pass the weight *under* the axle, instead of *over*, as in the old way. It balances on level ground, bears upon the horse in *ascending*, and relieves him of the weight in *descending* a hill.

Improvements in Sawing.

Mr. A. F. Ward of York, Pa., has made an important improvement in Sawing. He has applied the direct action of the piston of a steam engine to the saw, and a whole gang may be worked by a cross-head and no crank used at all.

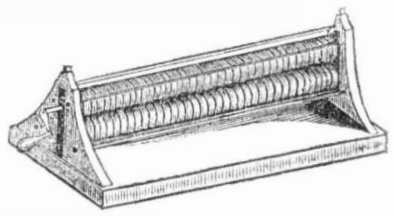
BAIN'S ELECTRO CHEMICAL TELEGRAPH.

(*Concluded from the first page,*)

the cord, the cylinder is moved also to the one side on its axle which, as will be seen, works like a screw. This is for the purpose of writing the communication regularly from one side to the other of the prepared paper. K, is a governor for the regulation of the shaft's speed and the small dial above is that of a watch for the purpose of the communicator and receiver turning their shafts in unison.—The index M, inside below is to regulate the revolutions of the shaft, revolving once for every revolution of the shaft, so that every thing about this machine is very perfect and exhibits a mechanical ingenuity for which its author has been styled "the most ingenious electric inventor of the age." The second cylinder is for the purpose of finishing the receiving of a message when the other is full, so that it makes no matter how long the communication is that has to be sent from one cylinder to the other, message after message may be continued as long as Allison's History. There is a way of breaking or continuing the current to any distance not seen in the engraving as it is on the other side of the machine. It is two small steel points which dip into boxes filled with mercury, so that no interference is made with a number of operators, as the same message can be received at twenty different stations at the same time. We have seen 1200 letters communicated in one minute by this Telegraph, and we are positive that 2000 could be communicated in the same time.—When this invention was first noticed in the Scientific American last January, a very pompous scientific gentleman made merry of the whole story and declared that "two hundred and fifty letters per minute was the very utmost limit to such communications." His ideas of scientific improvements are with the days that were.

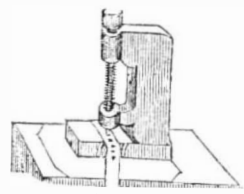
The communication desired to be sent is written upon a narrow strip or strips of paper. These strips of paper are cut out by a machine,

FIG. 2.



A whole piece of paper may be put in at once of any length and cut into thirty strips. This machine is just two swedge copper rollers. One of these strips is then put through or the communication written thereon, by

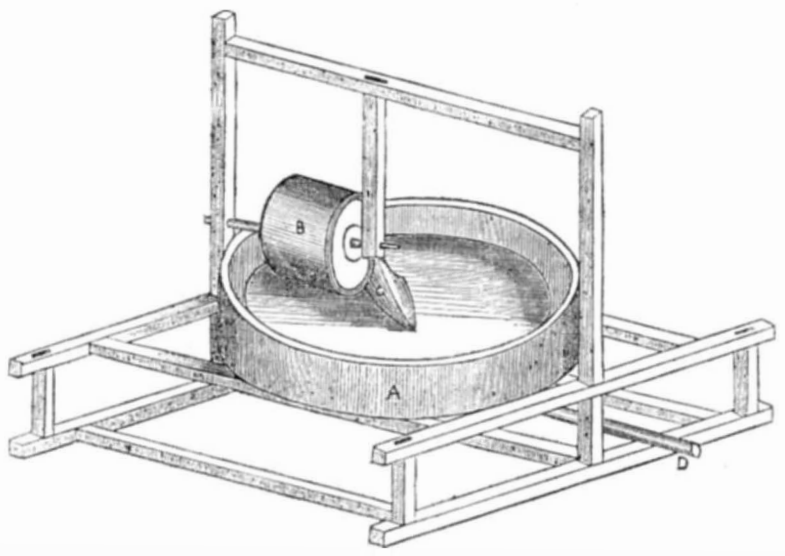
FIG. 3.



A boss punch with a spring which cuts out a dot, or three dots make a dash. A strip of paper thus perforated is rolled upon roller C, fig. 1, and passes over D, the current roller, and between a small pressing roller and E, by which the strip of paper or communication is rolled off by connection with the main shaft or axle S.

The date of Mr. Bain's patent is December 12, 1846. As this invention has become the subject of controversy, we will in another number present some facts relating to the subject, the principle and history of the Electro Chemical Telegraph, which are not generally known, but which have been in our possession for some time.

NEVINS'S DOUGH MIXING AND KNEADING MACHINE.



Horizontal and vertical dough mixers having a number of knives revolving on a shaft inside of a cylinder have been long known in England. Objections made to them have been against imperfect kneading. They have all mixed well enough. This machine of Mr. Nevins pretends not to mix any better than others, but it combines much better kneading qualities and is constructed entirely different from any that have ever been used for the same purpose.

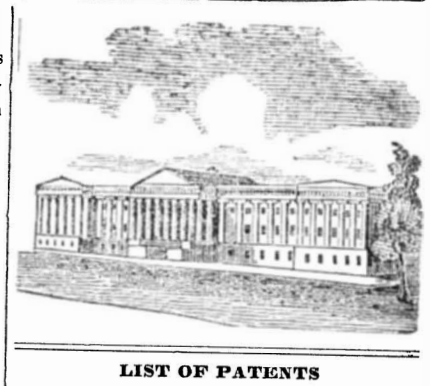
DESCRIPTION.—A, is a large tub, and B, a large iron roller about 1400 weight, so as to give a pressure equal to any man kneading with the spring pole, a method in common use in our cracker and biscuit factories. C, is a scraper to guide and turn over the dough under B. The whole apparatus is fixed on a strong frame and will occupy no more room than the common kneading bench. The roller rests upon the bottom of the tub and is made so that its axle may be accommodated a little in rising and sinking on the dough by having slots on the axle frame. The inside axle bearing does not rest upon the bottom of the tub, but is suspended on the inner upright of the frame. The scraper too, is attached to this upright and just rests upon the surface of the tub.

OPERATION.—The tub A, revolves, being driven by a shaft D, on the end of which is a bevel or cog wheel, which is under the tub and cannot be seen in the cut. This cog wheel meshes into another fixed into an upright axle attached in and to the centre of the tub. When the tub therefore, is revolved, the dough being mixed in the large space in the tub outside of the roller, it is all carried under the roller, turned over under it by C, and kneaded while passing under the roller, it occupying the radius of the circle. The tub has therefore a motion in one direction and the roller in another, combining the excellent kneading hand motion of the roller on the bake board. Measures have been taken to secure a patent.

New Railroad Coupling.

Mr. Isaac Woodstock, of Worcester, Mass., has invented a new Coupling for Railroad Cars It is self connecting and is said to be operated without being touched by hand. A car by it can be freed from the train ascending or descending inclines and when the trains are in full motion. The only apparent objection to it in our mind is that the manner of detaching is somewhat dangerous in the turning of curves.

Lime strewed about hen houses prevents vermin in the fowls.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending May 9, 1848.

To Joseph Ogle, of Baltimore, Md., for improvement in Brick Kilns. Patented May 9, 1848.

To Paul Stillman,, of New York City, for improvement in Steam and Vacuum Guages. Patented May 9, 1848.

To Isaac Hammond, of Philadelphia, Penn. for improvement in Cane Umbrellas. Patented May 9, 1848.

To Thomas Hollister, of Cornwall, assignor to Lyman W. Coe, of Waterbury, Conn., for improvement in the formation of Dies.—Patented May 9, 1848.

To Cosme Brailly, of New York City, for improvement in Utero Vaginal Bathers. Patented May 9, 1848.

To L. Anthony Geschiedt, of New York City, for improvement in Pessaries. Patented May 9, 1848.

To William Reynolds, of Greenbriar Co., Va., for improvement in Locks for Doors.—Patented May 9, 1848.

To J. Elnathan Smith, of New York City, for improvement in Railroads. Patented May 9, 1848.

To Zenas R. Moody, of Bridgeport, Conn., for improvement in Weather Strips for Doors. Patented May 9, 1848.

To Nathan Chapin, of Cortland Village, N. Y., for improvement in Atmospheric Churns Patented May 9, 1848.

To Willis H. Johnson and Thomas Lewis, of Springfield, Illinois, for improvement in Atmospheric Churns. Patented May 9, 1848.

To Addison Arnold, of Walpole, Massachusetts, for improvement in Beater Cylinders for cleaning Wool and Cotton. Patented May 9, 1848.

To John Drummond, assignor to William Brewster, both of New York City, for improvement in machinery for making Bullets. Patented in the United States May 9, 1848.—In England, (date not known.)

RE-ISSUE..

To William R. Nevins, of New York City, for improvement in Rolling Dough and Cutting Crackers and Biscuit. Patented March 2, 1836. Re-issued May 9, 1848.

DESIGNS.

To William Abendroth, of Port Chester, N. Y., for Design for Cooking Stoves. Patented May 9, 1848.

To Charles W. Warwick, of Philadelphia, Pen., for Design for Portable Furnaces. Patented May 9, 1848.

INVENTOR'S CLAIMS.

Cleaning Filters.

By John Watson, of Kingston, Jamaica, now residing in Washington, D. C. Improvement in cleaning Filters. Patented in the United States December 28, 1847, in England April 27, 1847. Claim.—What I claim as my invention and desire to secure by letters patent is the use of the brush or scraper in combination with a filter for the manufacture of sugar and for other purposes, the whole being combined and operating substantially as herein set forth.

Threshing Machine.

By Elias Gruver and John Gilliford, of Juniata Co. Penn. Improvement in machines for threshing and cleansing clover seed. Patented January 12, 1848. Claims.—What we claim as our invention and desire to secure by letters patent, is the combination and arrangement of the crank, the knob, the blocks and the springs in the cleaner, as hereinbefore described.

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NEW YORK, MAY 20, 1848.

The Dignity of Labor.

There is no word so much abused as that of *labor*. The rich and poor, clerk and mechanic, merchant and farmer, all abuse it. One calls labor "dignity," another looks upon it as disgraceful. As applied to a man who works, the word has a dignified connexion only as being the name for the employment of one of God's created beings, and in this case its dignity is comparative according to the creature of whom it is spoken. Dignity cannot be applied to any thing inanimate. It can only be applied to sensitive beings, and probably to man alone. Dignity cannot therefore be predicated of labor. It applies to the *laborer*, and not to him because he is a laborer, but as it respects his character. Nor, on the other hand, can degradation be applied to labor. Custom, however, has taught us to regard certain kinds of labor as dignified or honorable, and certain other kinds degrading.—This is a false sentiment. Man should, and yet will, be looked upon with every mark of respect, independant of his daily occupation. The right means to bring about such views generally, is that of noble sentiment and intelligence—holding up the man for his worth independant of the name of the occupation at which he honestly labors. The mechanical classes are divided into castes. One class of tradesmen look down upon another, and all classes are more or less imbued with the same feelings. Such sentiments should be banished from every breast. "'Tis worth that makes the man."

Practical Blunders.

There is not a week passes over our heads but we see or hear tell of some lucky person who has discovered perpetual motion. The pursuit of this motion is not confined merely to the illiterate and unlearned mechanic, but singularly enough men of rare intellect, wealth and learning have pursued the phantom and wasted both time and means in futile efforts to immortalize their names in the discovery of an impossibility. A general diffusion of sound knowledge connected with the principles of mechanics would soon dispel this kind of chimera from an inventive mind and leave it free to pursue projects of utility and of a rational character. A young man of an inventive turn of mind when first struck with the beauty of some piece of mechanism and not well acquainted with the principles of its construction, generally turns his thoughts upon perpetual motion, because it is something of which every one has heard. Many an hour's sleep it costs him to astonish the world and at last he makes the grand discovery of a teetotum propelled by smoke, which would have run forever only it exploded. We have come to the conclusion that there is only one way to construct a perpetual motion, and that is by having a tall pole, say one hundred and seventy nine feet eleven inches and fifteen-sixteenths in length, elevated on a tall cliff and on the top of the pole have a single spider's thread suspended on the *point* of a point, which must be so fine that a microscope will fail to perceive it. The thread will no doubt always be in motion as the atmosphere is never without some current sufficiently strong to move it. Of the hundreds of perpetual motions that have been discovered, there is not one in existence at the present moment. This every body knows, but the reason why they failed is not known to a great number. Many no doubt ridicule perpetual motion who could not give a reason for their ridicule and who would be dumbfoundered were an opponent to assert ingenuously, that all perpetual motions failed for the want of true ingenuity. Every person, especially every mechanic, should be established in the fundamental principles of science, so that he may be able to give a convincing proof and reason for every assertion that he makes

Disinfecting Fluids.

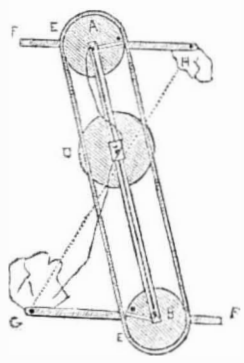
As the warm season is about to open when fevers and other diseases are generally more prevalent than during the winter, it will not be out of place to call the attention of our readers to some facts in relation to this subject. The fruitful sources of diseases are intemperance in eating and drinking, uncleanness and bad ventillation. The first causes of disease are often just punishments—the latter are most frequently unfortunate calamities. The rapid generation of gases by the influence of the sun's heat decomposing animal and vegetable substances, often poisons the atmosphere. Hence people who live in the vicinity of stagnant waters, or in pent up streets and houses, are more subject to disease than those who live in airy and dry situations. The mortality among people of the lower classes is always greater than among the higher and the more generously cared for, owing partly to the causes we have mentioned. It is therefore, desirable that so far as it possibly can be done, the causes of diseases should be removed, "an ounce of prevention is better than a pound of cure." To destroy the bad effects of gases that cause disease, many substances have been tried and with good effect, although we must say that the idea of a perfect disinfectant is altogether out of the question. The British Mission of disinfectants that were sent to Quebec last summer became victims themselves to the very disease they came out to annihilate, and Dr. Grant of our own country, who had been so signally successful in some cases of disinfection, according to public statements, became a victim himself to yellow fever at Vera Cruz. Cleanliness, frequent bathing, a perfect drainage of all sinks and proper ventilation, together with regular and temperate diet, are the best guarantees of health. In some situations and in some countries this cannot always be done. It would, therefore, be wise and prudent to use the best disinfectants in such situations. The chloride of lime in small quantities strewed about a cellar floor is a good disinfectant. Charcoal is another. The latter absorbs carbonic acid gas, the former destroys its effects. Copperas (sulphate of iron) is said to be another good disinfectant and if a pound of it mixed with a a gallon of water be poured into sinks, good results may be expected. The best disinfectant of all, however, is the chloride of zinc or zinc dissolved in muriatic acid. This was the disinfectant that was expected to arrest the progress of all fevers and other epidemics. If it failed, it was not because it had no virtue, but because it was inadequate to vanquish a giant foe. We have mentioned these disinfectants in order to call attention to the subject. And it may be that some person who reads the foregoing may be the means of saving the lives of some fellow mortals. The chloride of zinc is applied by mixing it with water and sprinkling it about apartments, care being taken that it be so diluted with water as not to destroy clothing on which some drops of it may fall. In cellars it can be used stronger, and in cesspools its full strength. The only benefit of science to man, is its application to promote his welfare and happiness and any new discovery that tends to prevent some of the ills of life, is worthy of general attention.

Substitute for Marble.

A memorial has been submitted to the United States Senate, from the "Hartford Argillo Manufacturing Company," asking an examination and test of a certain material manufactured by the Company to be used in lieu of marble.

This memorial states, that, "although this manufacture is in its infancy, it can now be furnished as cheaply as the finest marble, which it is destined entirely to supersede. It is a preparation of clay by chemical agency, of great durability and intense hardness, exhibiting the high polish and lustre of the precious stones, being susceptible of every variety of hue, is of unsurpassed and permanent brilliancy, and cannot be equalled in practical use. The memorialists ask no patronage from the Government in advance, being convinced that, after examination and test, it will at once be introduced in all the public buildings in lieu of marble."

The Ediograph.



In a previous number we gave an engraving of the Pentograph, an apparatus for copying drawings, &c. on a larger or smaller scale as desired. Above we present a drawing of the *Ediograph*, an instrument intended to answer the same purpose; it is more elaborate and expensive, but far superior to the Pentagraph in the precision and beauty of its application. It is the invention of Professor Wallace, of Edinburgh. A B, is a triangular mahogany bar, having a longitudinal groove in it; an arbor fixed to the weight or fulcrum D, on which the socket C turns, passes through it; by this means the bar can slide through it; at each end of the bar and on its under side are wheels E, each of precisely the same diameter and turning on vertical axes, in pipes fixed to the bar; on the underside of each wheel is a socket in which the arms F, slide; one of these has a tracer and the other a pencil at opposite ends, G and H; a steel watch chain passes around the wheels and is clamped to them to prevent its slipping. To adjust the instrument, the bar A B is slid in the socket C, and the arms F in their sockets, so that B C and B G shall have the same proportion to A C, A H, that the original has to the intended copy. These adjustments are made by means of graduated scales, on the bar and arms for the purpose; by this the tracer and pencil are brought into a line with the centre C. The motion of the tracer is communicated to the pencil by the chain round the wheels, and a string passing over a pulley and round pins at A and C is brought to the artist's hand to enable him to raise the pencil where the outline is discontinued.—The action of this figure in practice is so correct that the outline of a figure can be reduced by means of it to an almost microscopic minuteness, with an accuracy which defies the most critical examination to detect an error: this great superiority chiefly arises from the small degree of friction occasioned by the mode in which the motion is communicated to the pencil; in the Ediograph, the friction of the axes of the wheels and of the centre of motion at C, is alone to be overcome, while in the Pentagraph there are five centres of motion, and the friction of the rollers on the paper in addition; this addition enables the artist to move the tracer of the former over the complicated outline of a figure with a precision and spirit that is impracticable with other machines.

Appropriations for Agriculture.

A memorial has been presented to the Senate of the United States by Hon. Reverdy Johnson, from Mr. John S. Skinner, of this city, a well known agricultural writer, praying in behalf of the agriculturists of the country, an appropriation of money, to be applied, under the direction of the State Governments, or as Congress may direct, to the establishment of institutions for the instruction in Geology, Mineralogy, and vegetable and animal Physiology, in civil engineering, as applied to road making, bridge building, and rural architecture, and to other instructions in the mechanical principles on which depend the labor-saving property and efficacy of agricultural implements and machinery.

In calling the attention of the Senate to this memorial, Mr. Johnson asked, whilst millions have been expended for the arts which teach the destruction of life, how much has been given to the noblest of all sciences, which instructs only to promote, to prolong, and render life happy and virtuous? Nothing, literally nothing. According to Mr. Skinner's estimate eighty per cent of the disbursements of the government is for military and naval expenses; that is to say, eighty dollars of every one hundred paid by the people into the Treasury is appropriated to the keeping up our military establishment, and preparations for war; whilst for agriculture, "which exists only for peace, and through peace, which brings no wo, but only immense good, not one dollar is given." In conclusion, Mr. Johnson, in allusion to the constitutional objections that might be brought against Mr. Skinner's proposition, remarked: "If commerce can be protected and encouraged, and it has been from the beginning of the government to the present day; if manufactures can be protected and encouraged, and they have also been from first to last; if the profession of arms even can be protected and encouraged, and when has it not been, then why may not agriculture and her followers be protected and encouraged?"

Congress should appropriate some money to teach members the principles of machinery, in order that they might be guided by more sense in their conduct towards Inventors. We say that every interest has been protected but the interest of the mechanic; what laws have been made for his encouragement or his protection?

Arkansas Lead Mines.

We learn from the Little Rock Democrat, that Messrs. Moreland, Moulton and Hunt, the proprietors of the lead mines in the neighborhood of Little Rock, are now erecting houses near the "diggins" for the accommodation of a large gang of miners who will shortly arrive from Memphis.

Within a few days past discoveries of very extensive deposites of the mineral have been made at some distance from the premises, which prove that the mining region is much more extensive than was at first supposed. In digging the foundation for a furnace, a "lead," eighteen inches thick and seven feet broad, was struck about three feet below the surface of the ground. A sample of the ore has been subjected to analysis by a celebrated chemist, whose report shows it to contain a larger per centum of silver than the lead from any other mines yet discovered in the United States. The proportion of silver is said to be sufficiently large to pay both the expense of cupellation and raising the ore. Much of the land in the neighborhood of the mines belong to the United States, and considerable excitement is manifested by speculators to procure information sufficient to enable them to make entries.

The Coal Trade.

The Coal Trade, says the Pottsville Emporium is very dull. The buyers are scarce and the stock has largely accumulated.

Notice.

The concluding article of Mr. Gilroy's Tapestry Carpeting, is delayed until next week, on account of not being able to get an engraving ready in time.

Scientific American---Bound Volumes.

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Morocco Leather.

The true morocco leather is goat-skin tanned and then dyed on the side of the grain. Sheep skins are treated in the same way. The skins are steeped first in a fermenting mixture of bran water for a few days, they are then worked upon the horse, steeped in fresh water for 12 hours, and rinsed in the same. They are next drained, steeped in weak lime-pits for a proper time, till the hairs can be readily detached. They are now subjected to the action of a blunt knife upon the horse-beam, in order to strip off their hair, after which they are cleansed in running water. Any excrescences must be carefully removed with the fleshing knife, and their edges neatly pared. The next process is rubbing them strongly with a piece of hard schist set in a wooden frame, in order to expel by pressure any lime which may still adhere, and to soften the grain. They are now worked upon the horse-beam with the blunt knife and subjected to a species of fulling, by being agitated by pegs in a revolving cask along with water. Many manufacturers prefer a weak alkaline ley, or putrified urine, in the lime bath.

The skins are immersed for a night and a day, in a bran bath, in a certain state of fermentation, then worked on the horse, and salted, to preserve them till they are to be dyed.

Preparatory to being dyed, each skin is sewed together edgewise, with the grain on the outside, and it is then mordanted either with a solution of tin, or with alum water. The color is given by cochineal, of which from ten to twelve ounces are required for a dozen skins. The cochineal being boiled in water along with a little tartar or alumn for a few minutes, forms a red liquor, which is filtered through a linen cloth, and put into a clean cask. The skins are immersed in this bath, and agitated in it for about half an hour, they are taken out and beaten, and then subjected to a second immersion in the cochineal bath. After being thus dyed, are rinsed and tanned with Sicillian sumach, at the rate of two pounds for a skin of moderate size. This process is performed in a large tub made of white wood, in the liquor of which the skins are floated like so many bladders, and moved about by manual labor during four hours. They are then taken out, drained, and again subjected to the tanning liquor; the whole process requiring a space of twenty-four hours. The skins are now unstitched, rinsed, fulled with beetles, drained, rubbed hard with a copper blade, and lastly hung up to dry.

Some manufacturers brighten the color by applying to the surface of the skins, in a damp state, a solution of carmine in ammonia with a sponge; others apply a decoction of saffron to enliven the tint. At Paris the morocco leather is tanned by agitation with a decoction of Sumach in large casks made to revolve upon a horizontal axis, like a barrel churn. White galls are substituted for sumach; a pound being used for a skin. The skins must be finally cleaned with the utmost care.

The black dye is given by applying with the brush a solution of red acetate of iron to the grain side. Blue is communicated by the common cold indigo vat: violets of a light blue followed by cochineal red; green, by Saxon blue followed by a yellow dye, usually made with the chopped roots of the barberry. This plant serves also for yellow. To dry olive, the skins are first passed through a solution of green vitriol, and then through the decoction of barberry root, containing a little Saxon blue. Puce color is communicated by logwood with a little alum; which may be modified with the addition of a little Brazil wood. In all these cases, whenever the skins are dyed, they should be raised, wrung or rather drained, stretched upon a table, then besmeared on the grain side with a film of linseed oil applied by means of a sponge, in order to promote their glossiness when curried, and to prevent them beoming horny by too rapid drying.

The last process in preparing morocco leather is the currying, which brings out the lustre, and restores the original suppleness. This operation is practiced in different manners according to the purpose the skins are to serve. For pocket-books, portfolios, and case making in general, they must be thinned as much as possible upon the flesh side, moistened slightly, then stretched upon the table, to smooth them; dried again, moistened, and lastly passed two or three times through the cylinder press in different directions, to produce the crossing of the grain. The skins intended for the shoemaker, the saddler, the book-binder, &c., require more pliancy, and must be differently curried. After being thinned, they are glazed with a polisher while still moist, and a grain is formed upon the flesh side with the roughened lead plate or grainer of the curriers, called in French *pomelle*: they are glazed anew to remove the roughness produced by the pommel, and finally grained on the flesh side with a surface of cork applied under a pomelle of white wood.

Lost Inventions.

How few, how exceedingly few of the conceptions and experimental researches of mechanics have ever been recorded! How many millions of men of genius have passed through life without making their discoveries known! Even since printing was introduced not a moiety of those who possessed in an unusual degree the faculty of invention have preserved any of their ideas on paper. Of some men celebrated for the novelty of their devices, nothing is known but their names; they have gone, and not a trace of their labors is left. Of others, the title by which they designated their inventions is nearly all that has come down to us—no particulars by which we could judge of their merits. This is the case with many of the old experimenters on steam, especially those who raised or attempted to raise water by it. Among these we have sometimes thought Lord Bacon should have a place, under the impression that he employed, or designed to employ that fluid to raise water from the deluged mines which he undertook to recover. He obviously had some *new* modes and machines for the purpose. An account of these he laid before the King (James I.) who approved of the project, and consented that the aid of parliament should be invoked. In the "Speech touching the recovery of drowned mineral works," which Bacon prepared to be delivered before parliament, is the following passage: "And I may assure your Lordships that all my proposals, in order to this great architype, seemed so rational and feasable to my Royal Sovereign, our Christian Solomon, [!] that I thereby prevailed with his Majesty to call this honorable Parliament to confirm and impower me, in *my own way of mining*, by an act of the same." This great man was therefore in possession of a novel plan of accomplishing one of the most arduous undertakings in practical hydraulics; and so impressed with a belief in its efficiency that the king was induced by him to call, or agree to call, a parliament, chiefly it would seem to give sanction to it. What the plan was, we are not informed, nor is any account of it believed to be extant. Dr. Tenison, (Archbishop of Canterbury) the author of "Baconiana," alluding in 1679 to Bacon's "Mechanical Inventions," observes, "His *instruments* and ways in recovering deserted mines, I can give no account of at all; although certainly, without *new tools and peculiar inventions*, he would never have undertaken that new and hazardous work."—That the project consisted chiefly in some peculiar mode of raising the water is certain; and it is worthy of remark that a member of his household was a mining engineer, and celebrated for the invention or construction of hydraulic engines, viz. "Mr. Thomas Bushel, one of his lordship's menial servants, a man skilful in discovering and opening mines, and famous for his curious *water works* in Oxfordshire, by which he imitated rain, hail, the rainbow, thunder and lightning." This was probably the same individual who is mentioned in some Biographies as "Master of the Royal Mines in Wales, under Charles I.—*Ewbank*.

The human body is of nearly the same temperature under similar circumstances, in winter as in summer, in polar and in tropic climes. The extremities will of course be colder, but not the internal parts of the body.

Phenomena of Sound.

(*Concluded from No.* 32.)

The effect of a vibrating spring, or, indeed, of any vibrating body on the atmospheric air, is to establish in it a series of condensations and rarefactions which give rise to waves.—These, extending spherically from the point of disturbance, advance forward until they impinge on the ear, the structure of which is so arranged that the movement is impressed on the auditory nerves, and gives rise to the sensation which we term sound. Both the sonorous body and the soniferous medium must, therefore, be elastic, the regularity of the pulsations of the former depends upon the uniformity of its elasticity. In the case of strings we give them the requisite degree of elastic force by stretching them to the proper degree. And, as the undulatory movements which arise in the soniferous medium are not instantaneous, but successive, it follows that the transmission of sound in any medium requires time. That this is the case, we may satisfy ourselves by remarking the period that elapses between seeing the flash of a gun and hearing the report. It is greater as we are removed to a greater distance. In different media, the velocity of transmission depends on the density and specific elasticity. It has been found by experiment that in tranquil air, the velocity of sound is 1120 feet in a second. The wind accelerates or retards sound according to its direction; damp air transmits it more slowly than dry, and hot air more rapidly than cold, the velocity increasing a little over one foot for every Fahrenheit degree. In a soniferous medium, all sounds move equally fast; it is wholly immaterial what may be their quality or their intensity. Thus, we know that the most intricate music executed at a distance, is heard without any discord, and precisely as it would be close at hand. Nor does it matter whether it be by the human voice, a flute, or bugle, or indeed, by many different instruments at once, the relation of the difference of sound is accurately observed. But this can only take place as a consequence of the equal velocity of transmission; for if some of these sounds moved faster than others discord must inevitably disue. The experiments of Colladon and Sturm on the lake of Geneva show that the velocity in water is four times that in air, being 4708 feet in a second. With respect to solid substances, it is stated that the velocity in air being 1, that in tin is $7\frac{1}{2}$, in copper 12, in glass 17. Advantage is sometimes taken of these principles to determine distances. If we observe the time elapsing between the flash of a gun and hearing the sound, or between seeing lightning and hearing thunder, every second answers to 1120 feet. The quantity, or strength, or intensity of sound depends on the intensity of the vibrations and the mass of the sounding body. It also varies with the distance, being inversely proportional to its square. Musical sounds are spoken of as notes, or as *high* and *low*; the higher is that which arises from more rapid, and the lower from slower vibrations Sounds also differ in quality. The same note emitted by a flute, a violin, a piano, or the human voice, is wholly different, and in each instance peculiar.

Female College.

A College to be named by Royal permission "Queen's College, London," in conjunction with the Governesses' Benevolent Institution, has been formed, with a view to place female education on the same basis as that of endowed schools and universities for the male sex. Its chief purpose consists in the examination of and granting diplomas and certificates of qualifications to governesses, to enable them to produce satisfactory evidence of their merits, and in affording the less competent an adequate and orderly preparation for their work.

A Temperance Society in Prussia

We read in a Berlin letter of the 21st. ultimo:—"A singular scene took place yesterday. On an invitation of the Temperance Society, there was a meeting of three thousand boys, of from four to sixteen years of age. They are to compose the band of hope for the complete abolition of spirituous liquors, and the propagation of gymnastic exercises. After singing some hymns, the band of hope separated in the midst of loud huzzas."

Canadian Improvement.

The Canadians seem determined if possible to compete with the Americans in the carrying trade from the Lakes, and for the purpose of carrying cheaper and quicker they are building steam vessels adapted to the navigation of the Canada Canals and the St. Lawrence. Messrs. Macpherson & Crane, of Kingston, are constructing a second steamer, intended to carry freight between the Lakes and Quebec. She is as large as can pass the Welland Canal, and her capacity for freight will be 3000 barrels. Messrs. Hooker, and Henderson are building a vessel of the same class at Lachine. The Kingston Whig predicts that within ten years the whole forwarding business of Upper Canada will be done in this class vessels, and that shipments of bread stuffs to Europe will take place at Quebec instead of Montreal. A vessel that can take in 3000 barrels at the ports of the Upper Lakes and deliver the cargo alongside of a ship at Quebec, must be a great improvement upon all previous modes of transportation down the St. Lawrence.

Exchanging Pearls.

A little orphan boy, about twelve years of age, while fishing on the banks of the Tennessee river, picked up a large pearl among the muscle-shells. Returning home, he accidentally exhibited it while rummaging his pockets, filled with fish lines, corks, shells, coppers, baits, &c. A gentleman who was standing by, observing the costly treasure, asked the little fellow how much he should give him for it. "O!" said the boy, "a bit or two, just as you please." "No," replied the other, "you must not sell it for a trifle, it is worth a great sum. I will send it to Nashville, to be sold, and the proceeds of it shall be applied to your education." It was sent to a lapidary in Nashville, who estimated it to be worth $500. Let it glitter in the diadem of a crowned head, and that boy's mind be enriched with jewels whose lustre shall outshine and outlive the lustre of diamonds, and he shall have parted with it for a pearl of greater price.

Electricity Universal.

Electricity is diffused throughout the entire mass of this globe and of the atmosphere which surrounds it, and it may be regarded as one of the most active elements in all the works of creation. In every chemical change with which we are acquainted—in the various processes of organic life—in the mechanical movements of particles of matter—in any alteration of state, under the influences of heat or solar radiation, it is by mere contact with solid bodies electricity is developed. We marvel at its influence in directing the needle of the mariner, and we are astonished at the rapidity of its flight.

Female Philanthropy.

That was a beautiful idea of the wife of an Irish schoolmaster, who whilst poor himself had given gratuitous instructions to his poor scholars, but when he increased in worldly goods he began to think that he could not give his services for nothing:—"James, don't say the like o' that," said the gentle-hearted woman, "don't";—a poor scholar never comes into the house that I don't feel as if he brought fresh air from heaven with him. I never miss the bite I give them; my heart warms at the soft homely sound of their bare feet on the floor, and the door almost opens of itself to let them in.

Excavations in Pompeii.

Late excavations have brought to light many curious and long lost arts supposed to be invented recently, but which were known to the Romans and buried up for ages under the deluge of Gothic Barbarism and conquest. All the discoveries made in this ancient city go to establish the fact that at the time of their destruction, the Romans were nearly as far advanced in civilization as we are at the present moment. Rich safes ornamented with silver have been discovered with beautiful couches of the most excellent workmanship. Rich paintings, rich mosaic work and elegant gold and silver ornaments.

A magnet at a short distance from a watch, will cause it to stop, by attracting the mainspring.

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"J. M. F. of Indiana."—Your money came duly to hand and one dollar was credited on your subscription to the Sci. American, and the balance was used as you directed and the Nos. of the Architects were sent.

"J. W. D. of La."—We sent your book and papers to the care of LaForrest & Squires, New Orleans, by the brig Grecian which sailed last Monday.

"C. D. R. of Mass."—Yes, there is no better way to get your invention before the public than to let us get an engraving of your machine and publish it in the Scientific American. We have been instrumental in making many large sales in this way and the expense of an engraving is but slight. Our circulation now, is much larger than all other mechanical papers in America combined, so you can judge in which paper it would be to your advantage to have the engraving appear. We never publish any engravings that have appeared in other journals. The expense of a cut suitable to represent your machine fully will be five dollars, and the block to be yours after used.

"J. M. L. of N. Y."—We cannot confidently recommend the sewing machine mentioned in our paper yet. It has done both good and bad work. The principle will operate. We have the account of another invented in London, which we will notice at some other period. The invention of your elastic wheel simultaneous with the one we described, is singular, and shows how two ingenious minds at a distance from one another engaged upon the same subject come so near to the same conclusion.

"Bramble Bræ of Va."—Will you send us a letter soon.

"E. W. of Maine."—Your papers were sent to you last week.

"J. B. of Mass."—A patent could not be granted to work a pneumatic engine by any kind of water power. A patent may be granted for some new arrangement thereby to accomplish a certain result, but a pneumatic engine was worked by us seventeen years ago driven by a water wheel.

"D. D. R. I. of R. I."—It will probably be six months yet before you will hear of your patent.

"H. B. K. of Providence."—There are no less than seven or eight patent mowing machines, among which McCormick's and Ketchum's are somewhat famous. From your description it is not possible to judge particularly of conflicting points but we think there are some, particularly the cutters revolved by the wheels.

"W. L. of N. J."—No person will buy any plan, without a patent security, "now-a days." If by your plan, (if so tested,) you can dispense with the wires of the telegraph crossing waters, then your fortune is made; that is with less expense, if not, there is no use of being at the expense of a patent. It has long been known that even water and earth are conductors of the electric fluid, but to telegraphing can they be applied with economy?

"R. R of Geo."—We have not been able to obtain the information desired, nor to see Mr. Parkhurst, although we have taken some trouble to do so. The patent right was in law two months ago and is not yet settled.

"W. A. D. of N. C."—We regret being unable to furnish you with No 1 or 16 of vol. 2, at present. We possibly may be able to furnish them however in a short time, as we have advertised for those numbers and offered a premium of 10 cents per number for them. We do not know of any good practical work on Tanning that we could recommend.

"E. T. H. of Conn."—How can we afford to spend time in answering communications of those who are not subscribers? You should consider these things.

"J. R. of Tenn."—We have mentioned the amount of work done by Judson & Pardee's Stave Dresser, also by Mr. Law's, in the descriptions we gave of those machines. Either of them are good, but we do not know the price. If you write to Mr. Law, Wilmington, N. C., or Messrs. Judson & Pardee, New Haven, Conn., you will get full information. We can recommend either of them. We do not know of a Stave Riving machine in operation.

"S. V. of Mass."—We would use the slide valve in preference to the three ported or conical.

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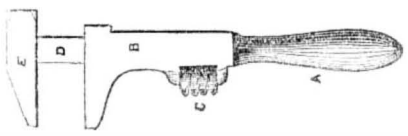

The above is an engraving of an Improved Wrench, manufactured by George C. Taft, of Worcester, Massachusetts. A, is the handle; B, the stock; C, the screw; D, the slide, and E, the head; The advantages of this key is apparent. In the inside of the stock there is a rack which is worked by the screw C, and this rack is covered up free from dirt while the screw can be worked with the thumb and all used with one hand. The ease with which this can be done must make this Key invaluable to every mechanic, as the fixed jaw is in the handle and the larger the nut to be screwed up or down the greater is the lever power. m20

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PATENTED.

The advantages of this Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine.

The improvement consists in being able to use either end of the screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler makers have them in use, by whom they are highly recommended.

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Worcester, Mass., April 11, 1848. a22 3m

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3	20	6 1-2	49	10 1-2	85
3 1-2	26	7	57	11	90
3 3-4	28	7 1-2	58	11 1-2	95
4	29	8	63	12	100
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THOMAS PROSSER, Patentee,

d26 28 Platt street, New York

Johnson's Improved Shingle Machine.

The Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighth more shingles can be sawed in the same given time than by any other machine now in use.

Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

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To Mill Owners.

Haviland & Tuttle's Patent Centre Vent Pressure Water Wheel.—These wheels are now in successful operation in many towns in Maine, Massachusetts, and Rhode Island, and are found to surpass in power and facility of adaptation any water wheel now in use. This wheel was awarded the silver medal at the Fair of the American Institute recently held in New York and a diploma at the Mechanics' Fair in Boston.

The wheels are manufactured and for sale by the FULTON IRON FOUNDRY CO., South Boston, Mass.,—where the wheels can be seen and any information concerning them had.

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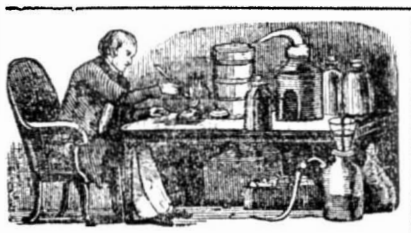


For the Scientific American.

Dyeing.

As many of our farmers will now begin to look out for their woolen manufactures, we intend to give them a few receipts for dyeing different colors, which they will find thoroughly practical and if they abide by our directions they will have good colors and that with half the trouble and time spent in making colors from the bungling and old fashioned processes to be found in most of the published works upon the subject, but especially in all the flying receipts that so often appear in our agricultural periodicals—not their fault to be sure, but the fault of those who send them for publication.

BROWN.

There are a number of ways to dye this color, but camwood is perhaps the best stuff that can be used. The cloth must be well cleaned from grease and dirt, and a kettle (copper is the best, or tin,) filled with water and for 20 lbs. of the cloth 5 lbs. of camwood, 10 lbs. of fustic and 2 lbs. of logwood boiled therein for 15 minutes in a bag and the cloth then entered into the kettle either on a winch, or all loosely, and kept stirring in such a manner as to keep the cloth loose. After this is boiled well for one hour, the cloth must be taken out and aired and the bag with the stuffs removed entirely. A small quantity of sumac is then put into the kettle along with half a pound of copperas, and the top of the boiler skimmed. The cloth is then entered and boiled for one hour, when it is taken out, aired and washed. It will then be a good rich brown and very fast. The more fustic it gets it will be all the richer in color. Some give the fustic after it goes through the process already described, and we prefer this mode, both for cleanliness and beauty, but it requires more time. The darker the cloth is wanted in the shade, more sumac or logwood and copperas should be added. Some darken with the sulphate of copper, (blue vitriol,) but the copperas is better, of this we are positive.—Don't be afraid of boiling the cloth well. It must have plenty of room in the kettle, or it will be spotted, but if it has plenty of room it will be even in color. This is a substantive color. The cloth takes up the colors without a previous preparation, Camwood and fustic will impart their color to woolen cloth without a mordaunt, hence the adaptedness of these stuffs for our farmers to use in coloring.

ORANGE.

For 1 lb. of cloth take 2 oz. of annatto, 2 oz. of soda, and 2 1-2 gallons of water. Boil the ingredients in a vessel one hour. Wet the cloth, then drain it well, put it in the dye and let it remain one hour, keeping the dye at nearly a boiling heat, drain and rinse and afterwards run it through some strong alum water or weak sulphuric acid and then wash well. This color is fugitive and will be destroyed by the sun's rays. It will do for carpet rags. This will dye a color on either silk, cotton or wool, a remarkable quality which but few other dye stuffs possess. Woolen goods should never be dyed with it, as the soda injures the fabric.

To Transfer a Print to the Surface of Wood.

The surface to which the print is to be transferred must be covered with copal varnish; afterward receive a thin coat of mixture of copal varnish and old linseed oil; or of an article sold by the druggists under the name of *transfer varnish*, and which consists of a mixture of copal varnish, and fir-balsam. When this is partly dry, but yet remains adhesive, the print is first dipped in water and allowed to remain a few minutes in the open air, to allow part of the moisture to evaporate It is then spread smoothly on the varnished surface, with the smooth surface down, and gradually pressed down on the varnish with cotton, or other soft substance When the varnish has become nearly dry, the print may be pressed down a little harder; and when the varnish has become thoroughly dry, the paper is wet with a sponge, and rubbed carefully with the fingers till the paper peals off in small rolls, leaving all the lines and shades of the print adhering to the varnish. The process of transferring prints to glass is the same, with the exception of the primary varnishing.

A Perspectograph.

Mr. E. W Ellsworth, of East Windsor, Ct., has invented a Perspectograph, for copying in perspective, and said to be a very fine instrument. It consists of a small telescope, about one foot in length, mounted on a heavy support, and suspended by two axes at right angles to each other, so as to move with freedom in any direction. Beneath the eye piece is a pair of sliding tubes, for carrying the pencil. These tubes are attached to the telescope in such a manner, that the movements of the pencil and the object glass are exactly similar; and the attachment is so perfect, and simple withal, that the motions of the telescope are communicated to the pencil with microscopic delicacy. A minute opaque point occupies the centre of the glass, by which the eye follows the lines of the original object or picture to be copied.

If the artist wishes to copy a picture, he fastens it upon the wall at any distance, to which he may choose to adjust the focus of his instrument, and the paper on which the copy is to be received is confined on the table beneath the pencil. The observer with his eye at the telescope, and his hand on the pencil moves the latter so that the tracing point on the glass may follow the lines of the picture, and he is sure that the pencil will faithfully copy those lines without inversion on the paper. A building, a landscape, a face or any other real object may in the same manner be represented, by tracing the outlines of the figure, and as much of the filling up as the observer may choose The size of the drawing may be varied at pleasure, by altering the distance of the instrument from the object.

We have not seen the above instrument, but if it performs as represented, we should certainly desire one of them, as we just want such an apparatus and hundreds of others do the same.

Receipt for Cleaning Engravings.

Put the engraving on a smooth board, cover it thinly with common salt finely pounded, pour or squeeze lemon juice upon the salt, so as to dissolve a considerable portion of it; elevate one end of the board, so that it may form an angle of forty degrees with the horizon. Pour on the engraving boiling water, from a tea-kettle, until the salt and lemon be all washed off; the engraving will then be perfectly clean: and free from stains. It must be dried on the board, or some smooth surface, gradually. If dried by the fire or the sun, it will be tinged with a yellow color Any one may satisfy himself of the perfect efficacy of this method, by trying it on an engraving of small value.—*Ex.*

The first trial will undoubtedly prove satisfactory and final too.

Caoutchouc from Drying Oils.

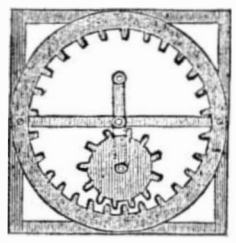
In the forty-sixth volume of the *Archives de Pharmacie*, Paris, M. Jonas has an essay on this subject. Linseed oil, boiled for a long time, yields a brownish varnish: this is to be boiled for a long time in water containing nitric acid; the loss by evaporation must be supplied and the acid not allowed to act too violently. At last a substance is obtained which gradually solidifies; this is to be washed to free it from acid. This substance does not adhere to the fingers, is plastic, does not melt by itself, and when heated strikingly resembles caoutchouc. It dissolves partially in ether and sulphurate of carbon, entirely in oil of turpentine.

Indelible Ink.

This may be made much cheaper than purchased, as follows:—Two drachms of nitrate of silver, added to a weak solution of tincture of galls. Another.—Nitrate of silver, one drachm, mixed with a solution of half an ounce of gum arabic in half a pint of pure rain water. Moisten the cloth previously with a strong solution of pearl, or salt of tartar, and iron it dry.

MECHANICAL MOVEMENTS.

Oscillating Column.



The above cut represents a section of Mannoury d'Ectot's Oscillating Column, invented for the purpose of elevating a portion of a given fall of water above the resorvoir, by means of a machine all the parts of which are fixed. It consists of an upper or smaller tube which is constantly supplied with water, and the lower or larger tube constructed with a circular plate in the centre of the orifice, which receives the stream from the tube above. Upon allowing the water to descend it forms itself gradually into a cone on the circular plate which cone protrudes into the smaller tube, so as to stop the flow of water downwards, and by the regular supply continuing from above the column in the upper tube rises until the cone on the circular plate gives way. This action is renewed periodically and is regulated by the supply of the water.

Graham's Escapement.

The first improvement of importance that was made in watches was by Mr. Graham, who introduced the cylinder tooth to act in the same manner as his dead-beat in clocks, and which was named the horizontal escapement. In this as in the dead-beat for clocks, the tooth of the scape wheel rests during the greater part of each vibration on a cylindrical surface and acts on the inclined plane for a short time only in the middle of each vibration, so that a change in the maintaining power scarcely produces a sensible derangement of the isochronism, for whichever way we turn the key of a horizontal watch, as long as it continues to go, the frequenting of the vibrations is scarcely affected. Most of our readers are familiar with the above cut, as it is a representation of only that which is to be seen in modern watches.

Watering Dahlias.

The watering of Dahlias, like that of many other subjects, is of but little use unless the ground be well saturated for a good distance round it, or, in fact, all over, for the supplying of water at the root only is of very temporary benefit, inasmuch as the parched earth all round absorbs the moisture so rapidly that a very short time after it is applied, it ceases to be beneficial. Many persons mulch round the stem with dung for some distance, but there are great objections to it; first, it is a universal harbor for ear-wigs and other annoying and destructive insects, and it is impossible to dislodge or get rid of them: next, it brings the roots to the top of the soil and when dry, the plants suffer in a short time almost beyond recovery. It is far better to dung the ground well, plant rather deep, and water all the ground, in preference to wetting nearly immediately close to the stem Another bad practice is to water often, and superficially, instead of seldom and downright well; when the ground has a good soaking and the water sinks deep, the roots will go after it, and do not suffer from every little change of weather.

Strawberries.

Strawberries planted on moist ground give out no runners: but by placing them on a dry soil with water at some distance, runners are seen travelling around, until they discover it, and there remaining a living aqueduct to supply the plant. If these runners are removed to the other side, they will soon regain their original position with unerring certainty.

Looking-Glasses for Birds.

"The following plan is perfectly efficacious for scaring birds from fruit and other produce," says a correspondent of the Gardners' Chronicle. "One of my servants having by chance broken a looking-glass, it occurred to me that the broken pieces suspended by a string, so as to turn freely in every direction would give the appearance of something moving about, which would alarm the birds. I accordingly tried the plan, and found that no bird, not even the most fool-hardy among them, dares come near. They had attacked my peas. On suspending a few bits of the looking-glass among them, the marauders left the place. The tomtits attacked my seckel pears, to which they seem very partial. A bit of looking-glass suspended in front of the trees, put a stop to the mischief. My grapes were then much damaged by thrushes and starlings, before they were ripe; a piece of looking-glass drove them away, and not a grape was touched afterwards. I have before tried many plans, but never found any so effectual as the above."

Hedges.

The best hedge in the United States, says the Genesee Farmer, extends about a mile along the highway on a plantation of 3000 acres, near Augusta, Georgia. It is the Cherokee Rose, which is now in full bloom, presenting a magnificent floral spectacle, and filling the atmosphere with delicious perfume. No animal without wings can get over, or through it. Having stood forty or fifty years it still promises a good fence for a century to come. The owner and occupant of this splendid estate, Mr. D'Laigle, was a St. Domingo planter at the time of the insurrection and dreadful massacre by the blacks, and was so fortunate as to escape to the United States.

Keeping Fresh Beef.

In preserving beef, the ribs will keep longest, or five or six days in summer; the middle of the loin next; the rump next; the round next; and the shortest of all the brisket, which will not keep longer than three days in hot weather.

In France the peasants train the carbine vine by their door to serve as a barometer. Its open flowers indicate clear weather, but closed, an abundance of rain.

Still water curves eight inches to the mile, which shows the convexity of the earth's surface.

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